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SYSTEMS AND PROCEDURES QUARTERLY

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Systems-Mindedness: *an Editorial*

SYSTEMS-MINDEDNESS is a recurring trait of twentieth-century American business enterprise. It surges to prominence in each period of expanding economy and recedes in the years of retrenchment which follow. During World War I the so-called "efficiency expert" burst into the national consciousness, flourished fitfully for a while, then all but disappeared during the period of "normalcy" which followed. But, although the efficiency expert was remembered only as the butt of derisive jokes, his impact on business methods was not entirely forgotten. His intellectual heir, the "methods analyst", fought for and gained a box on the organization charts of most of the country's leading industries during the twenties and thirties.

However, it was not until America faced the tremendous task of gearing its economy for total war, that systems-mindedness became a national trait. The compelling need for enlightened and progressive systems for controlling the vast domain of clerical operations which have become an essential part of all industrial enterprise brought the systems and procedures profession at last to prominence. This period saw the founding of the Systems and Procedures Association of America—a sure sign that the new profession was gaining the recognition of American business.

During the recession that followed the end of the war, systems men in many industries encountered a declining demand for their services. Some were forced to add line assignments to their duties, others had to transfer to different fields of endeavor. In many cases, businesses had overbuilt their systems staffs, but all too frequently management felt that systems men were not needed when retrenchment was in order. But there were some companies which recognized the fundamental need for the work of systems men in planning orderly and effective programs of retrenchment as well as of expansion.

(Continued on page 15)

Influence of

Systems and Procedures on Operations

By Scott B. Ritchie

IT is indeed a pleasure and a privilege to discuss the influence of systems and procedures on operations. Many of the things I want to emphasize will not be new to you who are authorities in the field of controls in business. You have probably discussed them many times and disposed of them in a manner consistent with the objectives of your association, dedicated to improvement in management control activities. These control functions, however, are so important they can be repeated again and again to great advantage.

The subject is timely and appropriate for it gives us a golden opportunity to stress the broader aspects of the influence of systems on operations—factors that have a transcending influence on the successful prosecution of business and, in turn, the security of our country. It has been requested that I emphasize the human relations angle and the total impact of the systems group. I shall be happy to emphasize this angle, for systems and procedures, although one of the prime control tools for use by management, cannot alone displace flexible human supervisory control. The human element is always there, and no factor is of greater importance in handling men successfully than is the human factor. It has a tremendous influence in determining the character and integrity of management.

Scott B. Ritchie

In the period between the two world wars, I was on duty for several years in the Office of the Assistant Secretary of War, as Chief of the Allocation Division, engaged in planning for industrial mobilization. This division had charge of studying and allocating manufacturing plants for war work. In this assignment I had the good fortune to become acquainted with the splendid facilities in the Philadelphia area and with some of the managements; and one of the primary elements we always considered very seriously in evaluating the war potential of a plant was the character of its management. A strong, enthusiastic management, capable of handling labor and converting rapidly and effectively to production of munitions, was a prime requisite in the list of our allocated facilities.

No subject today is of greater importance to every patriotic American than is national security. I mention this to emphasize the timely significance of systems work. It is abundantly clear to all of us, I am sure, that to preserve our cherished way of life, it is imperative that we develop and maintain adequate preparedness. One of the keystones in the arch of preparedness is a strong, healthy industry. Your association occupies a key position in the framework of our great industrial structure so essential in these critical days for assurance against war. You, through systems and procedures, are in a position to exert a stimulating and constructive influence on the basic factors

"Technical skills -- if you like, systems and procedures--in the field of human relations, must be developed to keep pace with those of technical production know-how, else management will fail."

which turn the wheels of our economy—factors such as organization, leadership, morale, conservation and utilization of economic resources—all essential in industrial operations.

Never has it been truer than now that management operates best through orderly systems and procedures. They are essential for good management. The natural tendency of the universe is toward chaos. The natural tendency of business is toward confusion and disintegration. If the manager of a plant has it running smoothly and then goes fishing, the plant will soon start on the road down hill to inefficiency in operations unless through well established systems and procedures, and other controls, he has provided the mechanism essential to uninterrupted production. That is what systems and procedures should do for operations—that is what they will do if they have been properly intergrated throughout the organizational structure.

Three musts for business

A casual examination of the problems that confront industry today indicates the importance of the work outlined in the objectives of the Systems and Procedures Association. Diversification and increase in volume of business create new problems—complex problems which necessitate procedures for orderly economical recording, reporting, and controlling of busines transactions. These problems are now further intensified by the imposition of ever-increasing government regulations and directives incident to the mobilization program. These are the problems with which management must deal, and are most intense in large organizations with diversified products. Now, for management to operate a plant or a business successfully, three basic factors are necessary: *a) good organization, b) good facilities, and c) good systems and procedures.*

Organization is the arrangement of personnel and the assignment to certain individuals of definite responsibilities and authorities. This embodies properly drawn organization charts, up to date at all times, which serve to sketch responsibilities and authorities, and to be complete must be fortified with adequate job descriptions. Facilities are such things as buildings, structures, equipment, tools, raw materials and supplies. Systems and

COL. RITCHIE is vice-president in charge of operations for the U. S. Pipe & Foundry Co., Burlington, N. J. He was graduated from West Point in 1917, and served continuously with the regular Army until 1946.

At various times in the course of his army career he was, in addition to other duties, Director of Laboratories at Watertown Arsenal; Commandant of the Ordnance School, Watertown Arsenal; Chief Allocation Division, Office of the Assistant Secretary of War, analyzing and assigning facilities for industrial mobilization (1936-39); Secretary, Ordnance Department, Ferrous Metallurgical Advisory Board (1939-41); Production Manager of Watertown Arsenal (1941-42).

In 1942 Col. Ritchie assisted in organizing the Procurement and Distribution Division of the Service of Supply, War Department. Then he was assigned as Chief of the Research and Materials Division, and later Acting Chief of the Research and Development Service of the Ordnance Department. In this capacity he was closely associated with the design, development and procurement of ordnance materiel used in World War II. In connection with this work, Col. Ritchie served in both the European and Pacific theaters observing the introduction of new ordnance materiel, investigating the performance of ordnance equipment, and collecting data on foreign materiel.

During this period he also served as a member of the War Metallurgy Committee of the National Defense Research Committee, and was the Ordnance Department liaison officer for NDRC, as well as for the National Inventors Council.

He also was associated with such other special activities as the development of the cold working method for making cannon, molybdenum high speed tool steel, cast and rolled armor, and armor piercing projectiles. His work in this connection has been referred to in the technical press on a number of occasions.

Col. Ritchie is the author of miscellaneous papers on ordnance design, development and metallurgy, and on procurement planning and planning for industrial mobilization.

From 1946 to 1948 Col. Ritchie was director, New Projects Procurement, The Franklin Institute Laboratories for Research and Development. Col. Ritchie joined U. S. Pipe & Foundry Co. as assistant to the vice-president in charge of operations, and later became assistant vice-president, operations. He was appointed vice-president in charge of operations in October, 1950.

procedures are the primary means whereby organization and facilities are made to function in the most effective manner—an integral part of management, a vital staff tool to help management execute its mission which, basically, is to make profits for the company. And these profits are not to be construed only for today, but must be assured for the future if the organization is to survive. So frequently we let the exigencies of the present submerge our planning for the future, so that when we arrive in the future we see how short-sighted was our work in the past.

It has been my experience that no matter where you work there is a place for application of systems and procedures. In production scheduling and control, cost application, accounting, quality control, safety, preventive maintenance, the office, and others, it has its place and its influence for good or for bad. If systems and procedures are not correct, if they have been installed before proper testing, or if not properly sold to those who must use them, they may be worse than useless. They, of course, must themselves continually be under surveillance and control. In good business, just as in good English, or in the security of our cherished rights as citizens, eternal vigilance is the price we must pay.

Perhaps we should stress more than we normally do, certain fundamental factors which are being neglected in these critical times through which we are passing. In fact, it seems all of us could very profitably think more of our Bill of Rights, and less of how we can get something for nothing; more of our cherished freedoms, and less of our trouble to perform our civic duties; we need perhaps to give more attention to the dignity of human labor and the individual rights of the human being, and less to selfish ambition. We have obligations to guard these privileges and rights inviolate against the attacks now coming from all directions in these unusual times. The establishment and maintenance of good sound human relations are of paramount importance for successful operations. Systems and procedures, by helping to establish and maintain sound, simple, streamlined organization, with duties and responsibilities clearly set forth will go a long way in improving human relations, and thereby advancing morale and efficiency. If we have undue overlapping of functions, if individuals report to more than one boss, if their responsibilities and authorities are not clear to them, then there is certain to follow confusion, dissatisfaction, lowered morale, and loss of efficiency in operations.

Great stress has been placed on the physical aspects of production. Scientific controls and improvements, largely in the name of efficiency and rationalization, have been instituted which have made possible our powerful technology of modern industry. Among these might be included simplification, standardization and interchangeability of parts which have made possible mass production as we know it in America today. Systems and procedures, of course, have knowingly or unknowingly played their part. After all, systems and procedures are actually managerial standards. They specify *who* is responsible for carrying out certain activities or *who* shall be in charge of it; *when* it shall be done, and good practice justifies explaining *why* it should be done. We would be much further advanced if the scientific controls now being advocated by your association had been more effectively applied in the earlier days. But much has been accomplished in the past few years by your association and we should not expect to move too rapidly.

Over the past 50 years, our machine power has increased many fold but nothing comparable to this has been accomplished in the personal relations field. The material advances have far outdistanced the human advances, and this is now reflected in our problems of production. In industry, management must produce and distribute its goods at a profit. It must also supervise the individual members of the organization so that they will cooperate and work together effectively as a team. The material or physical side of an industry may receive the most attention on reports and balance sheets, but the critical and decisive factors in producing successfully depend on the ever present human elements.

Human relations problems rising

According to one authority, a recent survey shows that about 60% of the average foreman's responsibilities involve personal and human relations problems; possibly as much as 80 or 90% of our management time could well be devoted to the human phases, analyzing our men, finding out why they work, their motives, their personal problems, becoming better acquainted with them and their families. The influence of good systems and procedures is to permit maximum time to be devoted to this effort.

Over the past two decades the public's concept of the social obligations of business has undergone a fundamental change which could have greater significance to the future of this country than anything that has happened in industrial and technological development. We must then be on guard to see that the principles of sound, just, human relations are developed and maintained, so that the pendulum of our social order will not go too far to the left and break down our industrial structure with the inevitable tragedy of disintergration, depression, unemployment and national insecurity.

With the coming of mass production and specialization in industry, human relations problems have increased. Herein lies a broad area of turmoil and transition, whose problems we must recognize and resolve if our American way of life is to be maintained. Technical skills, if you

like, systems and procedures—in the field of human relations, must be developed to keep pace with those of technical production know-how, else management will fail. Our management problems have increased in complexity, even at a greater pace than has been the change in industry. Research in human relations should be planned and executed as effectively as is done on the material aspects of operations.

Research aspects of systems work

I like to look on systems and procedures work as falling within the field of research—looking for something new—ways of improvement in getting things done, simplification and reduction of work, better human relations —all of which results in conservation of management time, facilitates executive decisions and action, improves employee morale, implements policy execution, develops teamwork among departments, assists in decentralized operations, and facilitates change as circumstances may dictate.

It is through the development and installations of suitable systems and procedures that top management implements its major plans and policies, exercises the proper controls, and coordinates effort among functional groups. If these procedures are well drawn, thoroughly tested, and have the approval and full support not only of top management, but of those who are to use them, operating costs are reduced, increased production is encouraged, service to customers is improved—in fact, the whole tempo of the business moves forward.

Perhaps the least exploited opportunity in the average American business is the improvement of procedures and clerical methods. In many respects this phase of business has not kept pace with improvements in shop operations. In 1870 some 80,000 or 1% of the workers in this country were engaged in clerical occupations. From that time to the present, one of the great changes has been the rapid increase in the ratio of clerical workers to total workers. Today the clerical workers are estimated at 10% and are increasing. Of the 60,000,000 workers, more than 6,000,000 are engaged in clerical functions. This is a large group and a fruitful field for exploitation wherein systems and procedures should play a major role.

Your work, your functions, your responsibilities in systems and procedures touch all aspects of good management. While probably the major part of your work is construed to be in the office, your influence must be felt throughout all staff and line departments if you are to function most effectively. Systems and procedures permeate then the whole structure. They may be called by other names, but their results, if good, will be found under such headings, each in the direction of efficiency of operations, as reduction in personnel, savings in equipment and materials, simplification and standardization of operations, savings of time, prevention of errors, establishment of danger signals in many areas; and, probably most important of all, systems and procedures men can relieve management of details which are an unnecessary burden on their time and energies, and this applies from the highest to the lowest echelon—from the president to the Foreman. With modern simple systems and procedures—without undue red tape—understanding, interest, pride of accomplishment and confidence in leadership will be engendered.

There is generally a tendency for paper work to increase, rightly or wrongly, and each department feels the need to maintain extensive files over long periods of time—to be self-contained. There is always a hesitancy or inertia to dispose of files. It is easier to requisition file cabinets than to sort and destroy worthless files. Yet it has been my experience that a large part of the material on hand is generally useless. The influence of systems and procedures should prevent this. And this situation may be due in part to systems and procedures themselves in that they may be too detailed—not flexible enough to vary from recognized standards when that is the better solution.

Unique qualifications

What I am trying to illustrate is that we must continually audit our work, our organization, our systems and procedures, to insure they fit the existing conditions, that they are not too rigid, too inflexible to the disadvantage of the more practical and simpler way of doing the job. There is always a resistance to change; and changes must be made in such a way as not to appear as a criticism of the person responsible for the thing being changed. One thing the systems and procedures man must watch is that

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". . . Furthermore, he did not believe that management could be learned from reading, or taught in the classroom; it had to be learned in the doing."

—Harlow S. Person, speaking of Frederick W. Taylor

he does not give the impression his work is an end in itself; rather, it must be put across that he is helping the other fellow to do even a more important job, and if possible that the suggestions for change came from the other fellow.

The systems and procedures man occupies a difficult position and should have some unique qualifications. He must have leadership attributes, a practical knowledge of psychology, and a keen insight into human nautre. He must be tactful; and, since he deals with men, he must know men. He cannot influence people in the right way if he does not have a deep understanding of what they are and how they are motivated. He must be technically competent, with sound judgment, imagination and initiative, able to present his suggestions and ideas clearly and logically. He must be forceful and persistent, for in his reformer role he will encounter much opposition. Yet he must not be impatient and expect to proceed too rapidly. Haste may make waste. He must be able to project himself into the future, to grasp the significance of the causes for which he is striving, and to relate his own efforts to that cause. If he has these qualifications I am sure he is one of the most valuable staff men in any organization, promoting good relations, analyzing and reporting upon operations, programs and policies, and insuring that a sound organization is maintained throughout, without which morale and operations will suffer.

Never become aloof

Staff groups, I find so frequently, tend to magnify and build up the importance of their own work and fail to look beyond the immediate functions of their groups. If they don't correlate their activities as a function of the organization of which they are a part, then they may render harm rather than service for which staffs are intended. Many times have I heard the statement "Keep those so and so's out of the plant and we will do the job"—or, "Send them down here and we will put them to work." Another observation I have made is that the staff man may tend to become aloof, working too far away from operations, failing to recognize and understand shop problems. When this is so the shop man may look askance at the staff man and the latter may have great difficulty in putting across his ideas.

A staff man is much more effective and valuable if he has had practical shop experience with its many problems, for only then can he fully appreciate the position of those who are living through these problems and who are carrying the responsibility of production. He is then in a much better position to pass judgment on operating conditions and to formulate sound recommendations which will also appear sound and reasonable to the operating personnel. How would you feel if you were in a shop responsible for its efficient operation, trying to keep cost down, faced with important schedules that must be met, under handicaps of inferior raw materials in short supply, and with sensitive labor negotiations at hand, if under these conditions you received requests from staff departments for reports on what appeared to you to be matters of comparative unimportance? Or if under these trying conditions you were being urged to make a change in operations in which neither you nor your personnel had any faith?

I believe you would say that it would take a mighty able staff man to convince you. He would need all the attributes of leadership I have already mentioned, and more.

Another mistake, I feel staff people make, which has an adverse influence on operations is to sell prematurely a system or procedure to the plant and then fail to click through with it as originally promised. This causes dissatisfaction and loss of faith in staff personnel, creating greater difficulties for later staff work. Let me mention another point. There is a tendency, I suppose, on the part of each of us to try to be thorough which is a desirable trait. But we should guard against too much detail. An old boss of mine once said to me he would rather have a report on time, even if it is only 80% complete, than not to get it before the need is past. Too much detail tends to delay and to cause those who receive the report a sense of frustration, with the possible result that it may not be read or used. Management appreciates a practical minimum number of reports, each as brief as possible, so long as clarity and proper coverage is not sacrificed.

This prompts the suggestion that before staff people either submit a report *to* others or request a report *from* others, they ask themselves if the report is necessary and what purpose it will serve, realizing it will take valuable time to prepare, and to read by those who feel they should read it.

Personalities a threat to results

I mention these things only to emphasize what you, of course, already know—that our biggest problem is people with whom we must work efficiently and effectively if systems and procedures are to accomplish what they should. You may have the best system in the world—one that would ring the bell to perfection—but if due to some human aspect it cannot be sold to the proper authorities who must approve its installation, your labors are lost. If in working out the details of the system, antagonism is created in the minds of those who are to use it, the chances of success, even if installed, are jeopardized. Systems and procedures must be so developed and so devised as to bring out the best in those who are to use them. This means encouragement of initiative, as well as assurance against loss of enthusiasm and support. Before

any new project is installed it should be understood thoroughly by all concerned; it should preferably be given a trial run, and where practicable, reduced to writing. I have had some unfortunate experiences where changes were made prematurely or where the system had not been thoroughly worked out in advance. Naturally, failures occured and systems got a black eye.

I knew an efficiency expert once who made a study of a sizable office to improve operations. He came forward with many suggested improvements and with what appeared to be a splendid recommendation for the establishment of a suitable system which would result in outstanding savings. But, unfortunately, he was a machine-like, mechanical fellow, not much personality, quite arbitrary, and by his approach had created so much antagonism among the employees that the whole scheme was kicked out. Another case among many I have observed, was the control division in a very large organization, who used such Gestapo tactics that a lot of good it could have done was lost because of lack of cooperation due to resentment it created.

Abraham Lincoln's method

We need to be forceful, yet tactful and patient, if the grand work you people do is really to be applied. Deep insight into human motives is essential if we are to succeed, such as that displayed in the philosophy of Abraham Lincoln. As you know, he had a lot of trouble with generals in the Civil War. I would like to quote a letter he wrote to General Hooker in placing him in command of the Army of the Potomac, in which Mr. Lincoln displayed deep insight into human nature:

"*General*:

I have placed you at the head of the Army of the Potomac. Of course I have done this upon what appears to me to be sufficient reasons. And yet I think it best for you to know that there are some things in regard to which I am not quite satisfied with you. I believe you to be a brave and a skillful soldier, which, of course, I like. I also believe you do not mix politics with your profession, in which you are right. You have confidence in yourself, which is a valuable, if not an indispensable quality. You are ambitious, which, within reasonable bounds, does good rather than harm. But I think that during General Burnside's command of the Army, you have taken counsel of your ambition, and thwarted him as much as you could, in which you did a great wrong to the country, and to a most meritorious and honorable brother officer. I have heard, in such way as to believe it, of your recently saying that both the Army and the Government needed a Dictator. Of course it was not for *this, but in spite of it, that I have given you the command. Only those generals who gain successes, can set up dictators. What I now ask of you is a military success, and I will risk the dictatorship. The government will support you to the utmost of its ability, which is neither more nor less than it has done and will do for all commanders. I much fear that the spirit which you have aided to infuse into the Army, of criticising their commander, and withholding confidence from him, will now turn upon you. I shall assist you, as far as I can, to put it down. Neither you, nor Napoleon, if he were alive again, could get any good out of an army, while such a spirit prevails in it.*

And now, beware of rashness—beware of rashness, but with energy, and sleepless vigilance, go forward, and give us victories."

Some of the things Mr. Lincoln touched upon are very pertinent in our management problems today. Systems and procedures men, as staff, are in a position to have a major influence on several factors which determine the nature of human relations in an organization, and in turn influence for good or bad the success of the operations. These factors are organization, leadership and morale. If we have good organization and good leadership we may rest assured we will have good morale, a factor essential for efficient production, and this is what systems and procedures are supposed to advocate. Good organization is fundamental in good management of any company. This has been so from the beginning of history.

The complicated problems of this age in which we live require the advice and assistance of specialists in many fields in order to give management information needed for executive decisions. We therefore have staff units—Engineering, Quality Control, Accounting, and others—whose function is service to the line—advice, information, coordination. Due to its importance, we might well add systems and procedures, a group not only for staff assistance to the others, but also to perform major functions in its own right, and one of these is study and advice on organization.

Now, with respect to leadership, in the course on leadership at the Adjutant General's School in April 1943, it was stated that no problem in the Army was more acute than that of providing competent leaders to command our armed forces, and that success in combat was dependent upon leadership. We may define leadership as the art of imposing one's will upon others in such a manner as to command their obedience and confidence and respect, and their wholehearted cooperation. Would you define the need for leadership in industry today in any different terms? Peter Drucker emphasized the importance of leadership when he said that "in the last war the great achievement of American Management lay in the technical field; the management of things.

This time our 'production miracle' will have to be based on the leadership of men." In World War I, our great secret was our unparalleled production which made the old German soldier Von Hindenburg say that America understood war. At the same time, Woodrow Wilson said that "The highest and best form of efficiency is the spontaneous cooperation of a free people." Our great production miracle in that war, as well as in the last, was possible only because of leadership and the human aspects of production.

I dwell on leadership because if systems men are not leaders, if they do not have the characteristics inherent in leaders, then they are not systems men. If they do not know organization, or if they do not have a full appreciation of the value of moral stability, they are not good systems men. They must be able to put over their sound ideas and do it without too much damage. There is a natural resentment to criticism and an inertia to change. Men respond to a smile and a pat on the back much more readily than to a needless sarcastic remark. In my estimation, the ability of a man to get along with people, to be able to cooperate in an atmosphere of good will and to work effectively with the team is worth many times the values we look for in technical ability. Men like to feel important and to know what is going on, and should therefore be kept informed. We should have a three-way flow of information and, where practicable, use personal contact methods.

As already stated, an important function of the systems man is to advise on organization, which in turn involves advice on selection of personnel. Mr. Baruch, who was chairman of the War Industries Board, World War I, had this to say with respect to selection of personnel: In his report of that mammoth accomplishment he stated that he "conceived it as his highest duty to surround himself with men peculiarly qualified in temperament, knowledge, and experience for the particular tasks as they developed." It was not his theory "to make a large paper organization before the facts." There was a study of men as well as the nature of the problems which were to emerge. He stated that with the right men almost any organization would work. His "aim was to have men who possessed special knowledge, each in his own field, but men with catholic and broad-gauged vision who could correlate the problems of their neighbors with their own." . . . "These features required not only qualities usually termed 'executive ability,' but also in a high degree, tact, patience, endurance, and buoyancy; enthusiasm which could inspire, and inspiration which could accomplish."

In our advice, then, on selection of personnel, especially systems men, we cannot be too careful to insure we have the right individual. Here is a case where haste makes waste, and I personally have experienced this to my own disparagement.

In conclusion, let me remind you, in the words of Disraeli, that "The great secret of success in life is to be ready when opportunity comes." Some of the greatest opportunities for systems and procedures men come in periods when we are going from a war economy to a peace economy, and the reverse. In 1945 you had the former and your record speaks for itself. Now you are faced with the latter, with our country in the throes of expanding industrial mobilization. Your task in this is an exceedingly important one. On organization, leadership, morale, and human understanding, the Systems group can have an impact of great significance. Let us maintain always a broad perspective, realizing that systems and procedures are to management what gages and standards are to mass production—vital controls for successful operations.

Mr. Ritchie's article was originally presented as a paper at a meeting of the Philadelphia Chapter of SPAA earlier this year.

SYSTEMS AND PROCEDURES ASSOCIATION OF AMERICA

Code of Ethics

AS A MEMBER OF THIS ORGANIZATION, I RECOGNIZE:

THAT I have an obligation to promote the advancement of systems and procedures throughout all management. I shall uphold the standards of our Association and cooperate with others in the dissemination of knowledge on developments in our field.

THAT I have an obligation to my employer and my fellow member whose trust I hold. I will endeavor to the best of my ability to warrant this confidence by advising them wisely and honestly.

THAT I have an obligation not to use my membership in this Association as an advertisement on my stationery to solicit business with clients.

THAT I have an obligation not to accept commissions for the sale of equipment to my employer or my clients.

THAT I have an obligation not to use any knowledge gained of the internal conditions of the business of a fellow member's employer to further my own personal interests with that company or discredit the fellow member before his employer.

Is the Modern Office Vanishing?

Some predictions for the future viewed against the background of the evolution of the systems function up to the present

By J. W. Haslett

SINCE the realities of modern science burst out of the laboratory and into the consciousness of the layman, it has become fashionable to predict the almost immediate and total disappearance of virtually everything as we know it today. New knowledge has recently come so rapidly upon civilized mankind and with such impact that its appraisal is easily distorted, its meaning misinterpreted.

While theoretical science is being converted to practical applications for the industrial world, that world is dividing into two opposing groups. One group, although acknowledging the likelihood of vast changes, doubts that they will come in the foreseeable future. The other group sees the miraculous just around the corner. In the field of office systems and procedures there are some who visualize little substantial change for a long time to come. There are others who predict that the office soon will give way to what might be called an administrative control room electronically operated.

Somewhere between these two concepts the truth must lie. Undoubtedly, however, the office as business knows it today is vanishing.

The greatest problem confronting the systems specialist today is to figure out the best way for business and industry to bridge the gap between the office of today and the office of the future. The change will necessarily evolve by degrees. It is the direct responsibility of the systems man to guide and control that evolution so that the inevitable transition will come in an orderly manner.

Evolutionary influences have been at work for many years and are still at work upon the systems function itself. In fact, the evolutionary cycle may be observed in the development of the systems function in a typical enterprise which has grown from a small company to one of medium size or large proportions. The cycle may be considered in terms of eight phases.

The first phase occurs when the growth of an enterprise brings about the need for administrative planning and control. For present purposes, administrative planning and control may be considered to involve non-routine problems of forward thinking as opposed to the routine and recurring judgments regularly exercised by all levels of management. These may be, but are not necessarily, limited to organization and procedures planning and control.

Phase two occurs when recognition is given to the need for administrative planning after conditions of growth have brought it about. At this point, usually starting with top management, each managerial level assumes the planning and control function as part of its normal administrative duties. Procedures planning and forward thinking on organizational problems form a basis on which future problems may be anticipated before they occur and solutions to these problems devised to be ready for use at the appropriate moment.

As the enterprise continues to grow, organization and procedures problems become more numerous and complex, with a consequent increase in their demands on the time of the operating levels of management. As is so often the case, the results which have been obtained from work in this field, combined with the diminishing availability of time on the part of operating supervisors and managers, indicate the desirability of full-time specialists being designated to assist all levels of management in the field of administrative planning and control. The need to abandon part-time planning in favor of full-time planning is phase three of the cycle.

Phase four comes into being with the establishment of a special staff within the organization to carry out these

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functions on a formally organized and systematic basis. The location of the special staff, which may consist of one or more individuals, depends in the main upon where the problems are concentrated in an organization or where the function may be most easily directed. In the largest organizations it is sometimes considered preferable to set up the special staff on a decentralized basis, retaining only over-all coordination at the central point.

Once the staff is organized, it enters the fifth phase which is the development of the organized approach. This is customarily called the development of programs, or major work objectives, in the field of administrative management. Most commonly there are six distinct programs. A typical statement of these programs would read like this:

OFFICE SYSTEMS PROGRAM

Conduct surveys of procedures and organizational relationships, in terms of the practicable extent of standardization, simplification, and production measurement.

The office systems program, although the most comprehensive of all, places its emphasis upon administrative work flows and the organizational relationships established to process the work. In this program, measurable units of work are developed and related to the number of employees required to process a given volume of work. Of necessity this program is closely coordinated with the other programs. Analysts responsible for the office systems program possess the most general type of methods knowledge, although they must, from time to time, call for assistance from specialists engaged in other programs.

EQUIPMENT STANDARDS PROGRAM

Conduct detailed studies and test makes and models of office machines and equipment for the purpose of making specific recommendations for practical application, proper utilization and economical operation of equipment recommended. Establish basic requirements for the justification of purchase and for budgetary control purposes.

The equipment standards program is the most technical of all the programs. It deals with the best applications of office equipment, in accordance with the requirements of the procedures in which they are employed. Since procedural variations frequently govern whether or not a process will be performed manually or by machine, the equipment program is closely allied and coordinated with the office systems program. Likewise, the manner of housing filed records in cabinets becomes a joint consideration of analysts engaged in the records management program and the equipment program.

RECORDS MANAGEMENT PROGRAM

Develop filing systems and standards for the effective management of records. Develop recommendations concerning the retention of records in accordance with prescribed company policies.

The records management program comprehends filing systems and the administration of records generally, including their arrangement, accessibility and preservation. Clearly a specialty, records management as a program must be conducted in terms of the procedures of which the records are a part.

OFFICE APPRAISAL

Follow up new methods installations and periodically review on a comparative basis the effectiveness of office systems, using data derived from the production measurement phase of the office systems program.

The office appraisal program, although it may be considered as a final phase of the office systems program, is developed separately. This is primarily because its emphasis is upon the comparative measurement of work performed, following the standardization which results from the development of revised procedures. The program starts only after sufficient time has elapsed to permit an accurate evaluation of results and final adjustment of procedural and organizational details.

COORDINATION PROGRAM

Establish a systematic means of correlating forms and reports with related administrative procedures and coordinate the dissemination of information concerning policies and procedures.

Coordination of forms: Within existing company requirements, develop and maintain a system for review and clearance of forms for purposes of analysis and standardization prior to use. Coordinate standardization with the office systems program.

Coordination of recurring reports and statements: Develop and maintain a system for review and clearance of recurring reports and statements initiated or requested, to avoid duplication and overlapping of data. Coordinate operations of the plan with the office systems program.

Coordination of publications: Develop and maintain a system for review and clearance for standardization of format and consistency of content, of manuals, instructions and other publications involving policies, procedures, organization, reports, statements or forms.

Each of the three segments of the coordination program could of itself become a separate program if the volume of work were sufficient to warrant separate emphasis. The coordination of forms, recurring reports and publications is basic to administrative management. Without forms coordination, many duplicating forms, ill designed for ease of use, could be allowed to slow down procedures and retard prompt operating action. Without reports coordination, independent segments of the organ-

ization could impose reporting requirements upon other offices of an unduly burdensome or overlapping nature. Without publications coordination, conflicting instructions could be issued. Coordination provides a clearance which prevents administrative confusion and unnecessary expense.

RESEARCH AND TRAINING PROGRAM

Establish and maintain relationships with professional management societies and with other companies for the mutual exchange of information relative to management improvements in policies, organization, procedures, equipment and methods development techniques.

Develop, by laboratory methods, systems applications to company problems; test the applications; maintain bibliography and file of data representing the most effective proven solutions to typical methods problems.

Prepare training material on all phases of methods work for the systematic use of employees engaged in this field.

Conduct regularly scheduled seminars in methods problems and techniques.

Coordinate activities with all other methods programs.

The research and training program embraces the development and exchange of technical data relating to methods work between internal and outside sources. Data are available to train new analysts and for refresher material for the staff.

The sixth phase of the evolutionary cycle of the systems function consists of the special staff putting into effect the basic analyses, controls and standards which will normally result from the programs enumerated. In this phase the emphasis is placed upon getting over-all problems solved and obtaining agreement to key standards on the part of the organization as a whole. During this period organization and procedures manuals are written, specific applications for office equipment are determined and continuing cooperation between the special staff and all levels of management is achieved. It is not uncommon for this phase to require several years to complete.

Following the forming of this broad foundation comes phase seven wherein further and more detailed refinements of analysis, control and standards, including the measurement of office production, are made. Here the emphasis is upon process analysis and on finecombing in greater detail all office operations for minor although significant improvements which were not made during the previous phase. Here again several years may be required in a large organization to complete the refinements.

Finally, the special staff is ready for phase eight, which is continuing in nature. It may be characterized as the follow-up or evaluation stage, wherein office operations are again reviewed in terms of changing conditions and the possibility of further improvements made possible by the results of current research.

That, in substance, has been the evolution of the systems and procedures, or administrative management, function in industry up to the present. Where it will go from here is largely up to the organized practitioners in this field. The question as to where the special staff should carry on beyond phase eight has still to be satisfactorily answered. One part of the answer may well be the development of whatever it is going to take to bridge the gap between today's office and the office of tomorrow.

There are two contributions which a technical systems organization can provide toward facilitating the transition from the old to the new. The first is a codification of the present knowledge of organization and methods techniques—the preparation of a complete and comprehensive work on what is now known about this vast subject. The second contribution is research into the as yet unexplored ideas and things which affect the office. A profession as young as systems and procedures has unlimited possibilities for future development.

Even as the present day office is surely vanishing, there are five pertinent predictions which may be made with a reasonable degree of certainty:

1. The place of the systems specialist on the management team will have become universally sesure, provided the profession as a whole has done its job well.
2. Emphasis in administrative management will be overwhelmingly placed upon the proper utilization of office equipment, since manual methods in office work will have gone the way of hand work in the plant, resulting in greater productivity and more jobs.
3. There will be a new trend toward centralization of office operations because of the need for a concentration of large volumes of transactions to utilize rapid, but relatively expensive office machines.
4. Machines will be developed to take care of the needs of small business as well as large.
5. Paper work may be entirely eliminated. Instead of a piece of paper representing each business transaction, there may be substituted something like an electronic impulse, regardless of the distance between points of origin or reception.

The inevitable paper work revolution is clearly at hand, for technology affects the office no less than the plant. It is up to management to recognize that fact. It is up to the systems man to do something about it.

How They Speed

Investment Advices

Safe Deposit and Trust Co. of Baltimore overcomes obstacles in applying photocopying equipment to an expanded operation

By Leonard G. Getschel

OUR company was chartered in 1864 for the safekeeping of valuables. This took place during the troubled period of the Civil War, when the need for such a service was increasingly felt throughout the country. The company began business in 1867, being the second company in the United States to enter the safe deposit business.

In 1868 it was authorized to extend its activities to the execution of trusts; and in 1876 to all other phases of trust business. The company is the oldest such trust institution south of the Mason and Dixon Line.

It has been our practice over the years, to advise our customers of changes of investments in their accounts as they occur. This procedure is somewhat a departure from that followed by other institutions, in that they accomplish a similar result by rendering statements of security transactions at stated intervals during the year.

At first, our customers were informed of security transactions by individual letters. Inevitably, as the company grew through the years, the increasing volume of work made a more simplified method essential. In 1937 a multiple snap-out ticket form was introduced. Tickets are prepared each day as changes take place. The original is the advice copy for the customer, while subsequent copies are distributed among the various operating units of the company.

The new system was a great improvement over the previous one, but through the years it presented certain difficulties. One was that, in about half of the accounts affected, more than one person had to be notified. Since only one copy of the advice was available, extra copies had to be typed and carefully compared for accuracy. In addition names and addresses had to be typed on envelopes, with the result that during peak periods the regular force of three people assigned to this work had to be augmented by additional workers in order to mail the advices as promptly as possible. This led to the realization that some change in our method was desirable, to eliminate the constant typing and comparing which was daily slowing down our production.

In September of 1949, we modified our procedure to include the photocopying of all investment advices on Remington Rand Dexigraph equipment. The new method reduces the time required to prepare and mail advices, eliminated clerical errors, and reduced the clerical staff from three to one. The additional help required during peak periods has also been eliminated.

Our procedure is simple and inexpensive. Advice copies of the snapout tickets go to the Dexigraph operator, who sorts them by account number and pulls the corresponding address cards. The address cards for each account are large enough in size to provide for as many as ten addressees. Should the addressees in any account number more than ten, a second or subsequent card is used. A photostatic copy of the transaction is made for each addressee, the name and address of the respective addressee being photographed on successive copies in such a way that they match the opening of a standard window envelope.

The photocopy machine used required some special accessories before the system could be put into full opera-

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tion. In the first place, a special copyholder, or easel, had to be designed and constructed to fit on the copy table of the machine. Divided into two parts, the larger section accommodates the advice tickets while the smaller section accommodates the address. This section consists of a black metal mask with a rectangular opening for positioning the address card. No matter how many addressees are on the card, only one can show through the opening at a given time.

The original plan was to have the names and addresses typed in a conventional manner on white cards. When dexigraphed, they appeared as a black panel with white letters. This was rejected by the local postal authorities because it failed to comply with U. S. Postal Regulations, requiring that addresses showing through a window envelope be printed in black on white or tinted material.

This difficulty was overcome by using black cards on which the names and addresses were typed with an aluminum ribbon. Because of the marked difference in reflective power between the black address cards and the white paper of the advices, it was found to be impossible to obtain a satisfactory image of both with the normal illumination of the machine. When the white form reproduced well, the address was too faint; when sufficient exposure was given to bring out the name and address, the image of the white advice was much too dark.

A sewing machine light was attached to the easel and shielded so that it illuminated only the name and address. This device overcame the difficulty. Placed just outside the area to be photographed, it throws just enough light on the black card to balance the exposure.

Copies are consistently good, as a result of standardized exposure and uniform processing. The developer, mixed once a week, deteriorates slowly in the deep tanks with which our darkroom is equipped; and a test exposure is made each morning to determine the correct exposure time for the day. On the average, exposures are increased one quarter of a second each day to compensate for the oxidation of the developer. In the darkroom, prints are processed in groups in vertical racks made to fit the tanks. Each rack holds 35 prints and a rack full can be developed as quickly as a single print.

To assure absolute accuracy, it is necessary only to make a simple comparison of the numbers assigned to the respective accounts, on the finished copies. Each of the advices prepared carries this account number. On the address cards the number of the account is shown in the extreme right hand corner opposite the name and address of each addressee. To verify copies before inserting them in envelopes for mailing, the operator need only compare the account number as it appears on the image of the

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Systems - Mindedness: an Editorial

(Continued from Page 3)

Within this milieu it was not surprising that the infant Systems and Procedures Association entered a period of slow growth. When the first National Systems Meeting was held in New York in 1948 there were only half a dozen chapters scattered sparsely along the Atlantic seaboard and the Pacific coast. Slow but steady progress during the next two years was reflected in the founding of three more chapters and the establishment of the SYSTEMS AND PROCEDURES QUARTERLY. By 1950 the association was able to hold successful east and west-coast conferences with a combined attendance in excess of six hundred.

With the coming of the present national emergency, business has again become universally systems-minded. The Systems and Procedures Association has strengthened its position during this period by modernizing its national constitution and by chartering five additional chapters in the United States and Canada. It has also launched a program of national research projects and has set up an employment service for members. For the first time the association has chosen a midwestern site for its annual conference.

The future still poses a problem as to how systems-minded business will remain when the present emergency passes. Undoubtedly some will be satisfied with whatever systems they have developed and will be content to lean back and drift with the current. But the majority of large enterprises are reaching a dynamic rather than a static concept of systems. They have learned from experience that today's ultra-modern method will be tomorrow's antique custom, that survival in a competitive economy depends on eternal vigilance over all phases of business operations. And from a higher viewpoint one cannot escape the thought that possibly the survival of our whole capitalistic economy depends on how systematically it girds itself to compete on a global scale with the economy of the communistic totalitarian states.

The Controller Looks at Systems and Procedures

Man-power shortages plus Washington-induced red tape adds up to a real challenge to the systems man today

By James V. Lester

SYSTEMS and procedures is a relatively new field of specialization. Like all the more modern tools of management, it must be considered in proper perspective to insure the most effective use. We must understand why systems and procedures developed as a separate function, where it fits into the organization structure, what it can do for us and what are the inherent difficulties and limitations. To answer these and other questions that come to mind, consideration must be given to the business picture as a whole.

Increased production of goods and services is the primary objective of our whole economy today. Production is the result of the coordinated use of time, men, materials and machinery. We can raise the level of this output either by using greater quantities of these components or by making better use of the available supply. This latter alternative we call "productivity." Improved productivity by itself can increase the total supply of goods and services by increasing the production per unit of time, per man, per lot of material, and per machine. Productivity is a dynamic concept and the potential gains are for all practical purposes almost unlimited. From experience we have found that productivity can be improved by either using more capital per employee or by better methods, including improved systems and procedures.

These concepts were applied in the shop many years ago. Industrial operations have been characterized by increased mechanization. Human muscle power simply cannot compete with the machine in our economy. There is no wage so low that it will support a family with even a minimum standard of living and at the same time permit the wage earner to compete on a cost basis with a machine, pitting his muscle power against mechanical and electrical energy. By the same token, man is no longer forced to earn his living by brute strength. Instead, equipped with the tools provided by capital, with relatively little physical effort he can turn out enormous quantities of useful objects.

The shop has recognized also the potential for increased productivity from better methods. Industrial engineers have proven the merits of standardization, layout, scheduling, operation sequence and time and motion study. Their techniques and objectives are worth noting since they carry over into systems and procedures. Industrial engineers employ time and motion study to break-down each task into elements and then rebuild to a better method—analysis and synthesis. They are always looking for "the one best way" to perform each job and are never won over by the "what was good enough for father is good enough for me" type of rationalization. This constant search for better methods has led to some startling improvements in shop practice. Frequently, these results are obtained by making small gains which, when multiplied by the thousands or even millions of repetitive operations, turn into substantial savings.

As mechanization of production becomes more wide spread, the operations of a typical industrial enterprise are characterized by a shift of man power from the direct labor category to service and control functions. Likewise, as business organizations grow the amount of time devoted to paper work rises rapidly. In a small company, a skillful management can have an intimate knowledge of all phases of the business. As the company increases in size, it becomes absolutely essential that the management function not by on-the-spot knowledge but rather by a more remote control technique. At this stage of development it becomes obvious that communication from the operating level to top management and in turn from top management back to operating levels is of the utmost importance. This communication takes the form of paper work.

There is, however, a deep seated and rather wide spread prejudice against paper work as such. Every day we hear clerical and accounting functions referred to as a necessary evil. This is a throwback to the days when only the man actually turning out production was considered of real importance and all other aspects of running a

business were felt to have a high nuisance value. In contrast to this rather backward attitude there has developed the dynamic concept of putting overhead to work. In other words, it has been recognized that while the direct production man is important, the impact of his performance on the success or failure of a business operates only within rather narrow limits. The output of the best operator is economically useless if the product is poorly designed, has no market appeal, is made of the wrong material or has any of a one thousand and one defects due to inadequate planning and control.

The old fashioned clerk

The same concepts of increase in productivity can be applied to office operations. The use of more capital has very obvious applications. It used to be typical of the old-fashioned clerk or bookkeeper to take pride in his ability to rapidly and accurately add a long column of figures using only a five cent pencil as his total equipment. Today a beginning clerk, using a three or four hundred dollar adding machine, can do the job much faster, more accurately and with written proof. One cannot help but be reminded of Eugene O'Neill's one-act play "The Adding Machine." You may remember that the bookkeeper spends most of his time calling off, checking and adding figures while he works up enough nerve to approach the boss about an increase in his salary. Just as he has convinced himself of his own importance he is called into the front office and told that his services will no longer be required since the company has bought an adding machine.

This mixture of the comic and the tragic is typical of what happens if we fail to employ people at their best skills and give them the tools required for good productivity. The increased use of capital in office work is not confined to such obvious pieces of equipment as typewriters, adding machines, calculators and bookkeeping machines, but also includes the proper use of floor space and other facilities such as lockers, elevators, conveyors, and rest rooms. Regarding such facilities one executive in a jesting way recently suggested that considering sanitary facilities for example, it is no longer economical to have people walk great distances to the plumbing. It is cheaper to bring the plumbing closer to the people.

Better systems and procedures play a very important part in increasing productivity in the office. Time is the most precious commodity we have. If better ways of doing things can be devised to eliminate the waste of human ability and energy, the resulting increases in productivity are frequently substantial and sometimes spectacular. Moreover, better systems and procedures can improve communications. There is nothing more frustrating to management than to get a clear, well prepared report too late for effective action. It is up to the systems man to make sure that reports reach the responsible people promptly enough so that control can be exercised when it will do the most good.

Again, once a report is started it takes practically an act of Congress to stop it. For some reason or other it is always much easier to embark on a series of new reports than it is to get rid of old reports which have out-lived their usefulness. This is particularly true when a single report is used by many different people in the organization through multiple copies. Even if you are able to convince the first twelve recipients of the report that they can do without it, the thirteenth is always in dire need of the information and is horror-stricken at the thought of life without it. There is no substitute for persistence and diplomacy in this field. Just because you bump into a stone wall the first time or the fifth time that you try to kill a particular report is no reason to give up. Useless information is a drag on productivity.

The place of systems and procedures in the organization picture varies from one company to another. Many learned dissertations have been written about the specific chain of command and the precise slot on the organization chart into which systems and procedures must fit. In actual practice the factors that determine the place of systems and procedures are so varied that it is academic to embark on such a discussion.

Without attempting to advocate the method for companies whose affairs are different than our own, it might be useful to briefly outline how we handle our systems and procedures setup. Two men were selected from our Industrial Engineering Department and sent to a nearby university to take courses in work simplification for

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Mr. Lester joined Standard Pressed Steel Co. in June, 1946, and was apointed controller the following year. He has been teaching evening courses in Advanced Cost Accounting and in Controllership for the past eight years—at Temple University for the past three years.

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clerical operations. When qualified, they in turn trained the supervisors in the controller's and other divisions of the company. This training program included regular classroom work consisting of twelve meetings, one and one quarter hours each. The supervisors enrolled in the courses were encouraged to learn by doing and each member of the class was required to work out a flow chart for a typical clerical operation in his department which was then discussed by the class as a whole and suggestions made for improvement.

Supervisors must recognize problems

In addition to this more or less formal training, our supervisors are advised to visit other companies in the area, study data prepared by suppliers of business equipment and forms, attend business shows, read text books, magazines and other periodicals and to join appropriate associations. The whole objective of this program is to make the supervisors able to recognize a problem or an opportunity and to call in the experts if necessary. We believe that a supervisor is part of management and as such is responsible for the training progress of the people in his department. One of his major jobs is to cultivate high morale and to engineer and sell the application of the company policies and procedures. We expect him to keep informed of all new developments as they may affect the company in general and his department in particular. One fundamental trait of a successful supervisor is the ability to transfer ideas and he must therefore first, understand and second, inform his people.

The "human relations" aspect of systems work has been the subject of many a speech and many an inspired article. Rather than attempt to cover again the general principles involved let us rather consider some of the practical problems that were encountered and the methods that were used to overcome them.

It is an ordinary human characteristic to desire security and to resist change. The cure is to take the mystery out of any new proposition. This can best be done by cultivating understanding through training methods discussed above. Likewise, people have a strong desire for status and are always concerned about the fact that a change in method may destroy their particular niche in the scheme of things. It does no good to expound humanitarian principles and then act to the contrary. The only way to eliminate the feeling of insecurity is by a consistent, long standing practice of making sure that the people who are displaced by new systems and procedures are given every opportunity to learn new skills and to be placed in gainful employment at a level equal to or better than the job which was eliminated.

Habit, or as the psychologists call it, "conditioned reflex" plays an important part in the lives of each of us. The famous scientist, Dr. Pavlov once conducted an experiment with a group of dogs which brings this point home. By involuntary reflex, a dog will salivate when he smells food. Each day for a considerable period of time, Dr. Pavlov rang a bell at the time food was given to the dogs. Then one day he rang the bell without giving them any food at all and the saliva glands worked just as profusely. We are all creatures of habit and consciously or unconsciously repeat patterns of behavior a thousand and one ways each day.

While it may seem quite a jump from the scientist's lab to the ordinary business office and from hungry animals to well fed office personnel, the essential lesson of conditioned reflex must always be kept in mind. People resist changes that interfere with their habits. As a very simple practical experiment, if you ordinarily wear a wrist watch try suddenly switching to a pocket watch for a week and notice how often you are annoyed. We have to be patient and understanding every time we change the conditions under which people work or the tasks to which they are assigned. One extremely practical way is to get across to the people concerned the reason for the change and to cultivate their suggestions for further improvement. This is not as easy as it sounds because of the well known difficulties of communication, including the limitations of language. Any given word may arouse diametrically opposite reactions in two normal people because the word has a different connotation to each of them. Likewise, technical terms frequently cause misunderstanding and confusion. A good systems and procedures man must be a student of semantics and an advocate of plain talk.

With our nation in a semi-war economy the increasing importance of systems and procedures is obvious. Washington is pouring out laws, regulations, restrictions, interpretations, priorities and controls at a terrific pace. In addition, there is a shortage of man power. This combination results in a challenge to the ability and ingenuity of our systems men. It is their responsibility to make sure that business does not bog down in red tape but rather that we operate with ever improving productivity.

Investment Advices

(Continued from page 15)

advice with the number opposite the name and address. If the two numbers correspond, the advice will go to the proper addressee. If the numbers do not correspond there is an immediate indication that the operator has used the wrong address card in processing the work for the day. In the year that this system has been in operation, not one advice has been mis-addressed.

The results have accomplished all that had been desired originally for the plan; and the form of advices has been readily accepted by our customers.